

SCHEDULE 2

Essential Safety Requirements

PART 3

MANUFACTURING

Manufacturing procedures

19. The manufacturer must ensure the competent execution of the provisions set out at the design stage by applying the appropriate techniques and relevant procedures, especially with a view to the aspects set out in this Part.

Preparation of the component parts

20. Preparation of the component parts (for example forming and chamfering) must not give rise to defects or cracks or changes in the mechanical characteristics likely to be detrimental to the safety of the pressure equipment.

Permanent joining **E+W+S**

21.—(1) Permanent joints and adjacent zones must be free of any surface or internal defects detrimental to the safety of the equipment.

(2) The properties of permanent joints must meet the minimum properties specified for the materials to be joined unless other relevant property values are specifically taken into account in the design calculations.

(3) For pressure equipment, permanent joining of components which contribute to the pressure resistance of equipment and components which are directly attached to them must be carried out by suitably qualified personnel according to suitable operating procedures and for pressure equipment in categories II, III and IV, operating procedures and personnel must be approved by a competent third party which, at the manufacturer's discretion, may be—

- (a) [^{F1}an approved] body; or
- (b) a recognised third-party organisation.

(4) In order to carry out the approvals referred to above, the third party must perform examinations and tests as set out in the appropriate [^{F2}designated] standards or equivalent examinations and tests or must have them performed.

Extent Information

- E1** This version of this provision extends to England and Wales and Scotland only; a separate version has been created for Northern Ireland only
- F1** Words in [Sch. 2 para. 21\(3\)\(a\)](#) substituted (E.W.S.) (9.12.2021) by [The Product Safety and Metrology etc. \(Amendment\) Regulations 2021 \(S.I. 2021/1273\)](#), reg. 1, **10(b)**
- F2** Word in [Sch. 2 para. 21\(4\)](#) substituted (E.W.S.) (31.12.2020) by [The Product Safety and Metrology etc. \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/696\)](#), reg. 1, [Sch. 24 para. 45\(a\)](#) (with [Sch. 24 para. 41](#)) (as amended by [S.I. 2020/676](#), reg. 1(1), 2); 2020 c. 1, [Sch. 5 para. 1\(1\)](#)

Permanent joining **N.I.**

21.—(1) Permanent joints and adjacent zones must be free of any surface or internal defects detrimental to the safety of the equipment.

(2) The properties of permanent joints must meet the minimum properties specified for the materials to be joined unless other relevant property values are specifically taken into account in the design calculations.

(3) For pressure equipment, permanent joining of components which contribute to the pressure resistance of equipment and components which are directly attached to them must be carried out by suitably qualified personnel according to suitable operating procedures and for pressure equipment in categories II, III and IV, operating procedures and personnel must be approved by a competent third party which, at the manufacturer's discretion, may be—

- (a) a notified body; or
- (b) a recognised third-party organisation.

(4) In order to carry out the approvals referred to above, the third party must perform examinations and tests as set out in the appropriate harmonised standards or equivalent examinations and tests or must have them performed.

Extent Information

E3 This version of this provision extends to Northern Ireland only; a separate version has been created for England and Wales and Scotland only

Non-destructive tests

22. For pressure equipment, non-destructive tests of permanent joints must be carried out by suitable qualified personnel provided that for pressure equipment in categories III and IV, the personnel must be approved by a recognised third-party organisation.

Heat treatment

23. Where there is a risk that the manufacturing process will change the material properties to an extent which would impair the safety of the pressure equipment, suitable heat treatment must be applied at the appropriate stage of manufacture.

Traceability

24. Suitable procedures must be established and maintained for identifying the material making up the components of the equipment which contribute to pressure resistance by suitable means from receipt, through production, up to the final test of the manufactured pressure equipment.

Final assessment

25. Pressure equipment must be subjected to final assessment in accordance with paragraphs 26 to 28.

Final inspection

26.—(1) Pressure equipment must undergo a final inspection to assess visually and by examination of the accompanying documents compliance with the requirements of these Regulations, for which purpose tests carried out during manufacture may be taken into account.

(2) So far as is necessary on safety grounds, the final inspection must be carried out internally and externally on every part of the equipment, where appropriate in the course of manufacture (for example where examination during the final inspection is no longer possible).

Proof test

27.—(1) Final assessment of pressure equipment must include a test for the pressure containment aspect, which will normally take the form of a hydrostatic pressure test at a pressure at least equal, where appropriate, to the value laid down in paragraph 40.

(2) For category I series-produced pressure equipment, the test referred to above may be performed on a statistical basis.

(3) Where the hydrostatic pressure test is harmful or impractical, other tests of a recognised value may be carried out provided that additional measures, such as non-destructive tests or other methods of equivalent validity, must be applied before such other tests are carried out.

Inspection of safety devices

28. For assemblies, the final assessment must also include a check of the safety devices intended to check full compliance with the requirements referred to in paragraph 14.

Marking and labelling **E+W+S**

29.—(1) In addition to the [^{F3}UK] marking referred to in regulation 49 and the information to be provided in accordance with regulations 13(1)(b) and 23(1), the following information must be provided—

- (a) for all pressure equipment—
 - (i) the year of manufacture;
 - (ii) identification of the pressure equipment according to its nature, such as type, series or batch identification and serial number;
 - (iii) essential maximum/minimum allowable limits.
- (b) depending on the type of pressure equipment, further information necessary for the safe installation, operation or use and, where applicable, maintenance and periodic inspection of the pressure equipment such as:
 - (i) the volume V of the pressure equipment in L;
 - (ii) the nominal size for piping DN;
 - (iii) the test pressure PT applied in bar and date;
 - (iv) safety device set pressure in bar;
 - (v) output of the pressure equipment in kW;
 - (vi) supply voltage in V (volts);
 - (vii) intended use;
 - (viii) filling ratio kg/L;
 - (ix) maximum filling mass in kg;
 - (x) tare mass in kg;
 - (xi) the fluid group;
- (c) where necessary, warnings fixed to the pressure equipment drawing attention to misuse which experience has shown might occur.

(2) The information referred to in sub-paragraph (1) must be given on the pressure equipment or on a dataplate firmly attached to it, with the following exceptions—

- (a) where applicable, appropriate documentation may be used to avoid repetitive marking of individual parts such as piping components, intended for the same assembly;
- (b) where the pressure equipment is too small, for example in the case of accessories, this information may be given on a label attached to that pressure equipment;
- (c) labelling or other adequate means may be used for the mass to be filled and the warnings referred to in sub-paragraph (1)(c), provided it remains legible for the appropriate period of time.

Extent Information

- E2** This version of this provision extends to England and Wales and Scotland only; a separate version has been created for Northern Ireland only
- F3** Word in [Sch. 2 para. 29\(1\)](#) substituted (E.W.S.) (31.12.2020) by [The Product Safety and Metrology etc. \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/696\)](#), reg. 1, [Sch. 24 para. 45\(b\)](#) (with [Sch. 24 para. 41](#)) (as amended by [S.I. 2020/676](#), regs. 1(1), 2); 2020 c. 1, [Sch. 5 para. 1\(1\)](#)

Marking and labelling **N.I.**

29.—(1) In addition to the CE marking referred to in regulation 49 and the information to be provided in accordance with regulations 13(1)(b) and 23(1), the following information must be provided—

- (a) for all pressure equipment—
 - (i) the year of manufacture;
 - (ii) identification of the pressure equipment according to its nature, such as type, series or batch identification and serial number;
 - (iii) essential maximum/minimum allowable limits.
- (b) depending on the type of pressure equipment, further information necessary for the safe installation, operation or use and, where applicable, maintenance and periodic inspection of the pressure equipment such as:
 - (i) the volume V of the pressure equipment in L;
 - (ii) the nominal size for piping DN;
 - (iii) the test pressure PT applied in bar and date;
 - (iv) safety device set pressure in bar;
 - (v) output of the pressure equipment in kW;
 - (vi) supply voltage in V (volts);
 - (vii) intended use;
 - (viii) filling ratio kg/L;
 - (ix) maximum filling mass in kg;
 - (x) tare mass in kg;
 - (xi) the fluid group;
- (c) where necessary, warnings fixed to the pressure equipment drawing attention to misuse which experience has shown might occur.

(2) The information referred to in sub-paragraph (1) must be given on the pressure equipment or on a dataplate firmly attached to it, with the following exceptions—

- (a) where applicable, appropriate documentation may be used to avoid repetitive marking of individual parts such as piping components, intended for the same assembly;
- (b) where the pressure equipment is too small, for example in the case of accessories, this information may be given on a label attached to that pressure equipment;
- (c) labelling or other adequate means may be used for the mass to be filled and the warnings referred to in sub-paragraph (1)(c), provided it remains legible for the appropriate period of time.

Extent Information

- E4** This version of this provision extends to Northern Ireland only; a separate version has been created for England and Wales and Scotland only

Operating instructions

30.—(1) When pressure equipment is made available on the market, it must be accompanied, as far as relevant, with instructions for the user, containing all the necessary safety information relating to—

- (a) mounting including assembling of different pieces of pressure equipment;
- (b) putting into service;
- (c) use;
- (d) maintenance including checks by the user.

(2) Instructions must include information affixed to the pressure equipment in accordance with paragraph 29, with the exception of serial identification, and must be accompanied, where appropriate, by the technical documents, drawings and diagrams necessary for a full understanding of these instructions.

(3) If appropriate, these instructions must also refer to risks arising from misuse in accordance with paragraph 2(3) and particular features of the design in accordance with paragraph 5.

Changes to legislation:

There are currently no known outstanding effects for the The Pressure Equipment (Safety) Regulations 2016, PART 3.